

Development of a Decision Support Tool to Evaluate New Ideas Validation in Idea Generation Process in Organizations

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Project Portfolio Management, SWOT
Analysis, Validation, VRIO

Abstract— Using strategic management aspects can be very beneficial specially in decision making process. Establishing a methodology that can motivate the employees to speak up their minds and increase their levels of loyalty and retention with suggesting new successful ideas that can take place in front of them to make their organization with a better work environment. The purpose of this research, as there is a pilot study suggestion of Integrated Strategic Management Tool designed and a solid structural flowchart that can help organizations, is to save their efforts and time with the most optimum results in terms of efficiency and effectiveness for organizational growth advantages. The tools are being considered in the final design of the tool is designed to be aligned with competitive advantages principles such as SWOT analysis, VRIO, Porter Five Forces and other general critical business aspects in PESTEL.

I. INTRODUCTION

The Kingdom of Saudi Arabia has launched its 2030 vision back in 2016. The vision aiming for future ambitious goals for the country to reform magnificently the economic structure from depending on one source of income to diversification of sources to reach the steady state of GDP without the huge impact of oil dependency. This ultimate goal wouldn't happen without the full alignment between the private sector, public sector and quality of life for citizens and residents. The 2030 transformation vision focuses on two main areas in decision making, which are decision making and process improvement for short-term and long-term applying. Empowering people to speak up their minds and come up with their flow of ideas is critical in such transformational change management. Here comes the role of Industrial

Engineering as one of the central and important part to achieve Kingdoms' Vision 2030, both Industry and Academic sectors need a perfect management system to enhance the decision-making process and to increase the productivity of the organization through their employees' abilities. Sometimes the organization has very effective and efficient employees, but due to some miscommunication of delivering the right ideas to the right people and weakness of management and wrong decision making, they got a drop in their performance. In this study, the researcher will try to use technical and management skills that integrate Strategic Management tools in one model in a certain way to achieve research goals. This integration will enhance capabilities of organizations to take an efficient decision for large group of set of ideas. This study will be conducted in Saudi Glass Company in the private sector, one of the biggest companies in glass

sectors, that has more than 1000 employees, and it works 24 hours / 7 days. Saudi Glass Company is making a good profit. By the end of this study, we can come up with the best combination of methods to develop a decision support tool to evaluate new Ideas validation in idea generation process.

II. RESEARCH MAIN POINTS

A. Problem Statement

Idea Generation Process is essential to any kind of new ideas or projects to be implemented at any organization. In order to evaluate new project success, team members in strategic departments should follow standard rules through their organizations' objectives to check if the new idea is feasible to take into consideration or not. Most of organizations take into considerations only popular quantitative economical methods such as: NPV, ROI, & Payback period, which take more time, effort, & budget.

B. Research Objectives

The main objective of this research is to help organizations that have Project Portfolio Management method to control flow of new ideas by employees to check the level of confidence for a certain kind of project in strategy department team members, who usually conduct idea generation sessions for new notions and projects. Therefore, there should be a standard scoring model that can be followed and assist to let decision makers take the right decision, whether to start implementing the idea generations sessions, before wasting teams' times and efforts. The objectives of thesis can be listed as followed:

- I. Analyzing Industrial Engineering & Strategic Management techniques such as Competitive Advantage, VRIO, Porter Five Forces, PESTEL, SWOT analysis, Analytical Hierarchy Process, TOPSIS, NPV, ROI, & Payback Period.
- II. This thesis will help organizations to seek the best combination of methods to develop a decision support tool to evaluate new Ideas validation in idea generation process.
- III. Validating the decision support tool in SAGCO.
- IV. Recommendations for next phases of improvement for the new tool.

C. Research Questions

This research aims to answer the following questions:

1. Is the proposed idea compatible based on group of expertise to reduce time of analysing ideas and encourage employees for speaking up their minds?

2. Could there be a specific model for applying strategic management methods in survey type of tool?

III. METHODOLOGY

Methodology is a systematic and theoretical analysis of methods applied and it is the path researches follow to reach to a certain goals and objectives, moreover, methodology is the mechanisms recognized by scientists can be used to observe, detect and investigate the acquisition of knowledge. This chapter includes the methodology used in applying strategic management tools with the steps and procedures carried out in this research. This chapter aims to demonstrate how the Integrated Strategic Management Tool can work and what it is consist of and how its important (PPM) Project portfolio management is the process by which an organization focuses its limited resources on the development of new products and operational enhancements. It is primarily responsible for the evaluation and prioritization of current and prospective projects together with other ongoing initiatives.

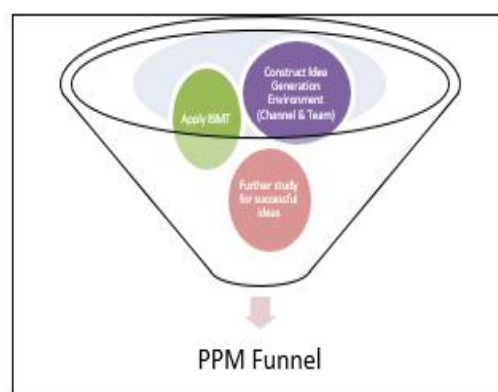


Fig.1: Project Portfolio Management

A. What is Integrated Strategic Management Tool?

ISMT consists of four pillars & aspects of strategic management techniques used in very efficient way to minimize the lead time of confirming ideas for PPM & idea generation process. First, after collecting the ideas, there should be a committee team with diversity of multi-functions & experience, who are at least aware of the following terms:

- Competitive Advantage (Michael Porter 1985)
A competitive advantage distinguishes a company from its competitors. It contributes to higher prices, more customers, and brand loyalty. Establishing such an advantage is one of the most important goals of any company. In today's world, it is essential to business success.

- SWOT Analysis (Albert Humphrey 1960s & 1970s)
 - ❖ It is a source of information for strategic planning.
 - ❖ Builds organization's strengths.
 - ❖ Reverse its weaknesses.
 - ❖ Maximize its response to opportunities.
 - ❖ Overcome organization's threats.
 - ❖ It helps in identifying core competencies of the firm
- Porter Five Forces (Michael Porter 1979)
Five forces analysis helps organisations to understand the factors affecting profitability in a specific industry and can help to inform decisions relating to: whether to enter a specific industry; whether to increase capacity in a specific industry; and developing competitive strategies.
- VRIO (Barney, J. B. (1995))
VRIO analysis is a tool in strategic planning, used by firms to make effective business decisions. The analysis provides information and the results will hopefully provide a competitive advantage. Firstly, VRIO is an internal analysis. It's used to identify and evaluate resources in the company.
- PESTEL (Francis Aguilar 1967)
It encourages the development of external and strategic thinking. It can enable an organisation to anticipate future business threats and take action to avoid or minimise their impact. It can enable an organisation to spot business opportunities and exploit them fully.

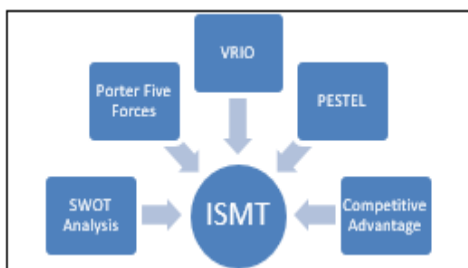


Fig.2: Integrated Strategic Management Tool

B. Applying Integrated Strategic Management Tool (ISMT)

As a pilot study conducted in SAGCO, the committee was constructed to contain the following:

Then, announcement has been distributed to employees' sample for large scale session of idea generation. Then, filtration was done by applying ISMT suggested tool. One of the ideas was very interesting and the management accepted it essentially with high potential of

implementation. Moreover, the idea simply was to use some portion of the recycle material and respond for low number of quantity request.

SAGCO produces 1000 tons of glass bottles daily (4 million bottles) with minimum accepted order of 1 million bottles in 13 lines with 5 furnaces and 2-3 hrs downtime to change the molds and machines setting up. On the other hand, due to the rapid increase of requests for thousands quantity orders by individuals and small establishments in this growing era of entrepreneurship, the idea came to satisfy the market need with higher profit and less capital investment.

As the following sample of ISMT tool took place in above example, here is a brief description of the mechanism of applying the method:

- 1- Establishing a channel to receive employees' ideas and communicate properly.
- 2- Construct a multi-disciplinary functions team to use the ISMT tool with 8 answers in the case of SAGCO pilot study.
- 3- In ISMT tool, there is 20 questions with a scale from 1 to 10, where 0 is not applicable and won't be calculated in the averages, it is consisted of five aspects of strategic managements techniques and theories. First, SWOT analysis which discuss internal and external factor and seeing how the idea is related to each point after that the rest of VRIO, PESTEL, & Competitive Advantage.
- 4- Calculating the average of all answers and agree on passing percentage where the research is suggesting 50%, less than 30% is failed and in between it will be left for voting.

C. The Benefit of Applying ISMT

- a- Determine level of feasibility in percentage to check if teams going to modify or drop the listed idea.
- b- Save time and efforts of the team to increase credibility between team members and leaders.
- c- Having enough time to focus on more feasible ideas.
- d- Continuous improvement for PPM in companies using accredited strategic management techniques.
- e- Easy model to use.

IV. RESULTS

				<div><div></div>0 = Not Applicable</div> <div><div></div>1 - 3 = Moderate</div> <div><div></div>4 - 6 = Good</div> <div><div></div>7 - 8 = Very Good</div> <div><div></div>9 - 10 = Excellent</div>	
Date:	05-Jan-21				
Number of Evaluators:	8	Name of Idea: Small Volume Production Line			
Idea Number:	1				
#	Elements	Questions	Average	NA Check	
1	Strength	How would you rate the strength of your organization comparing to the idea?	8	10	
2	Weakness	How would you rate the weakness of your organization comparing to the idea?	7	10	
3	Opportunity	How would you rate the opportunity on your organization with regard to the idea?	9	10	
4	Threat	How would you rate the threat on your organization with regard to the idea?	4	10	
5	Suppliers	How would you rate the number of suppliers with regard to the idea?	6	10	
6	Customers	How would you rate the number of customers with regard to the idea?	8	10	
7	Rivalry	How would you rate the number of rivalry with regard to the idea?	1	10	
8	Substitute	How would you rate the number of substitutes with regard to the idea?	1	10	
9	New Entrants	How would you rate the number of new entrants with regard to the idea?	5	10	
10	Valuable	How would you rate the following question, Is the idea valuable ?	9	10	
11	Rare	How would you rate the following question, Is the idea rare ?	7	10	
12	Imitatable	How would you rate the following question, Is the idea imitatable ?	1	10	
13	Organization	How would you rate the following question, Is the idea well organized ?	8	10	
14	Political	How would you rate the following question, Is the idea politically complied?	0	0	
15	Economical	How would you rate the following question, Is the idea economically feasible?	8	10	
16	Social	How would you rate the following question, Is the idea socially accepted?	10	10	
17	Technological	How would you rate the following question, Is the idea technologically well served?	7	10	
18	Environmental	How would you rate the following question, Is the idea environmentally friendly?	9	10	
19	Legal	How would you rate the following question, Is the idea legally complied?	10	10	
20	Competitive Advantage	How would you rate the competitive advantage of this idea to the organization?	8	10	
Total Percentage of Approval			66%	190	
Name of Evaluator:	Average Sheet	<div>Suggested Passing Percentage</div> <div><div></div>< 30% Failed</div> <div><div></div>30% < x < 50% Voting</div> <div><div></div>> 50% Passed</div>			
Years of Experience:	Average Sheet				
Department:	Average Sheet				
Signature:	Average Sheet				

Fig.3: ISMT Tool in Practice

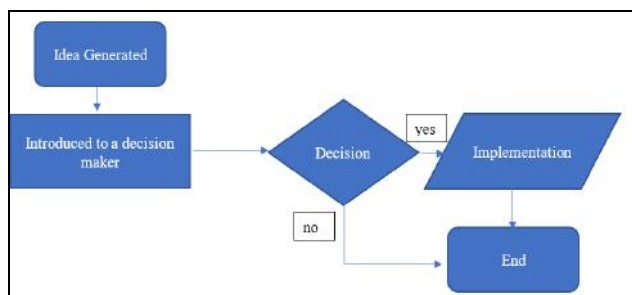


Fig.4: Old Process Flowchart



Fig.5: Suggested New Process Flowchart

V. CONCLUSION

All in all, organizations would magnificently benefit from using the methodology of ISMT application, which has five important aspects of strategic management techniques. Starting with establishing a channel to let their employees speak up their minds clearly, and constructing an expert team to evaluate, then the efficiency and effectiveness of applying the method right with the right time will highly positively impact the company business and its environment.

a. Recommendations

The main recommendation is to continuously improve the method with adding more aspects to it. Also, applying the method in more companies and organizations in both private and governmental sectors to see the best practice can be applied.

b. Research Limitations

This research focuses on PPM and Idea Generation. Many organizations don't use the previous methods and its applications of controlling the flow of ideas and information, which might impact the accuracy of results. Therefore, the developed method of novel scoring model should be applied in more than three hundred organizations to see the normal distribution and get the right accurate feedback on how we can improve it further. Finally, there should be a reward system and recognition for participants.

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